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Peripheral nerve blocks for paediatric day-stay surgery: one year's experience in a district general hospital

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SUMMARY

Two hundred children underwent day-care surgery using peripheral nerve blockade as an adjunct to general anaesthesia during a twelve month period. Total post-operative analgesia was achieved in 86%, simple oral analgesia was needed in 9% and the remaining 5% of patients required systemic opiate administration for pain.

INTRODUCTION

Paediatric day surgery has been performed in Belfast since 1909 [1]. Children are particularly suited to day care anaesthesia and surgery, being a predominantly healthy population, almost invariably accompanied by an adult. Supplemental regional anaesthesia reduces the need for post operative analgesics allowing more rapid recovery to normal activity [2]. The quality of regional anaesthesia is therefore of paramount importance in the day care hospital. We have audited one year's experience of combined peripheral nerve blockade and general anaesthesia in paediatric day surgery.

METHODS

Between April 1993 and April 1994, 200 unpremedicated children undergoing elective day surgery under general anaesthesia received supplementary peripheral nerve blockade. Surgery included circumcision, minor hypospadias repairs, orchidopexy, hernia and hydrocoele repairs. Dorsal nerve block was performed on children undergoing penile surgery, while ilio-inguinal/ iliohypogastric nerve blockade was used in the remaining patients. The blocks were performed by all grades of anaesthetists following induction of general anaesthesia. Standard techniques of peripheral nerve blockade were employed [3], using 0.25% plain bupivicaine. Diclofenac suppository was administered on a weight calculated basis to some patients, at the discretion of the individual anaesthetist.

In the recovery ward each child was assessed, when fully awake, by an experienced recovery nurse who objectively graded post operative pain as either "none, mild, moderate or severe" (0,1,2,3 respectively). Oral paracaetamol

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for mild pain, or systemic opiate for pain scores 2 and 3 was perscribed for all patients and administered entirely at the discretion of the recovery nurse. Any pain greater than "none" was treated. Following transfer to the day procedure ward, patients were assessed routinely and any further analgesic requirements were recorded until discharge. If a patient was admitted overnight, the reason for this was also documented.

RESULTS

The 200 children studied were aged between five months and thirteen years. The surgery included penile operations (105), hernia/hydrocoele repair (41), unilateral orchidopexy (44), and bilateral orchidopexy (5). Five further patients had bilateral operations of separate nature. No complications attributable to the nerve block were observed. Overall 172 (86%) patients had no pain (score 0), while 17 (8.5%) had mild pain (score 1) requiring oral paracetamol. Eleven children (5.5%) had pain scores of 2 (four patients) or 3 (seven patients) requiring intramuscular opioid analgesia (Table). The incidence of pain was reduced by the use of rectal diclofenac in children undergoing hernia, hydrocoele and unilateral orchidopexy operations. Of the 11 patients requiring opiate analgesia postoperatively, two were admitted for overnight observation. The indications for admission were pain and vomiting respectively.

TABLE

Analgesia requirements in 200 children aged 5 months to 13 years who had supplementary nerve blockage for day surgery: (a) total numbers (b) subdivided by additional use of diclofenac suppository.

	Type of surgery				
	Penile	*Hydrocoele or Hernia*	*Orchidopexy Unilateral*	*Bilateral*	*Other*
A					
No analgesia	97	35	31	5	4
Oral paracetamol	5	4	8	0	0
Systemic opiate	3	2	5	0	1
Total	105	41	44	5	5
B					
Peripheral nerve block only					
No analgesia	67	12	13	0	1
Paracetamol or opiate	6	4	9	0	0
Peripheral nerve block and diclofenac suppository					
No analgesia	30	23	18	5	3
Paracetamol or opiate	2	2	4	0	1

DISCUSSION

Good postoperative analgesia without sedation is a necessary prerequisite for successful ambulatory surgery. Peripheral nerve blockade may be used as an alternative to caudal blockade for postoperative analgesia in children. While the latter is highly successful, it has theoretical disadvantages such as inadvertent intravascular or intrathecal injection, motor blockade and urinary retention. Peripheral nerve blocks are easy to perform and several groups have found comparable analgesic results with caudal blockade. Yeoman and colleagues [2] found penile block as effective following circumcision without causing motor blockade. Ilioinguinal/iliohypogastric nerve blocks have produced equally good analgesia for herniotomy and orchidopexy [4, 5, 6]. Analgesic requirements following peripheral nerve blockade in the latter studies, including children who were premedicated with opiates [6], or benzodiazepines [5] have varied from 0% to 14%. Rectal diclofenac reduced the incidence of post-operative pain following both herniotomy and orchidopexy which would support its more widespread use. If the orchidopexies are excluded, 10% (14/148) of totally unpremedicated children in this audit received additional analgesia, oral paracetamol being adequate in the majority. However, a surprisingly high number of children undergoing orchidopexy (14/52) needed analgesics postoperatively, and of these 11% required an opiate. This may be explained by the increased tissue trauma involved in freeing the spermatic cord in this operation and the site of the scrotal incision may not be anaesthetised unless genitofemoral nerve blockade is also performed.

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